Chapter 2 Aircraft accident and serious incident investigations

1. Aircraft accidents and serious incidents to be investigated

<Aircraft accidents to be investigated>

◎ **Paragraph 1, Article 2 of the Act for Establishment of the Japan Transport Safety Board** (Definition of aircraft accident)

The term "Aircraft Accident" as used in this Act shall mean the accident listed in each of the items in paragraph 1 of Article 76 of the Civil Aeronautics Act.

◎ Paragraph 1, Article 76 of the Civil Aeronautics Act (Obligation to report)

1. Crash, collision or fire of aircraft;
2. Injury or death of any person, or destruction of any object caused by aircraft;
3. Death (except those specified in Ordinances of the Ministry of Land, Infrastructure, Transport and Tourism) or disappearance of any person on board the aircraft;
4. Contact with other aircraft; and
5. Other accidents relating to aircraft specified in Ordinances of the Ministry of Land, Infrastructure, Transport and Tourism.

◎ Article 165-3 of the Ordinance for Enforcement of the Civil Aeronautics Act

(Accidents related to aircraft prescribed in the Ordinances of the Ministry of Land, Infrastructure, Transport and Tourism under item 5 of the paragraph1 of the Article 76 of the Act)

The cases (excluding cases where the repair of a subject aircraft does not correspond to the major repair work) where navigating aircraft is damaged (except the sole damage of engine, cowling, engine accessory, propeller, wing tip, antenna, tire, brake or fairing).

<Aircraft serious incidents to be investigated>

◎ **Item 2, Paragraph 2, Article 2 of the Act for Establishment of the Japan Transport Safety Board** (Definition of aircraft serious incident)

A situation where a pilot in command of an aircraft during flight recognized a risk of collision or contact with any other aircraft, or any other situations prescribed by the Ordinances of Ministry of Land, Infrastructure, Transport and Tourism under Article 76-2 of the Civil Aeronautics Act.

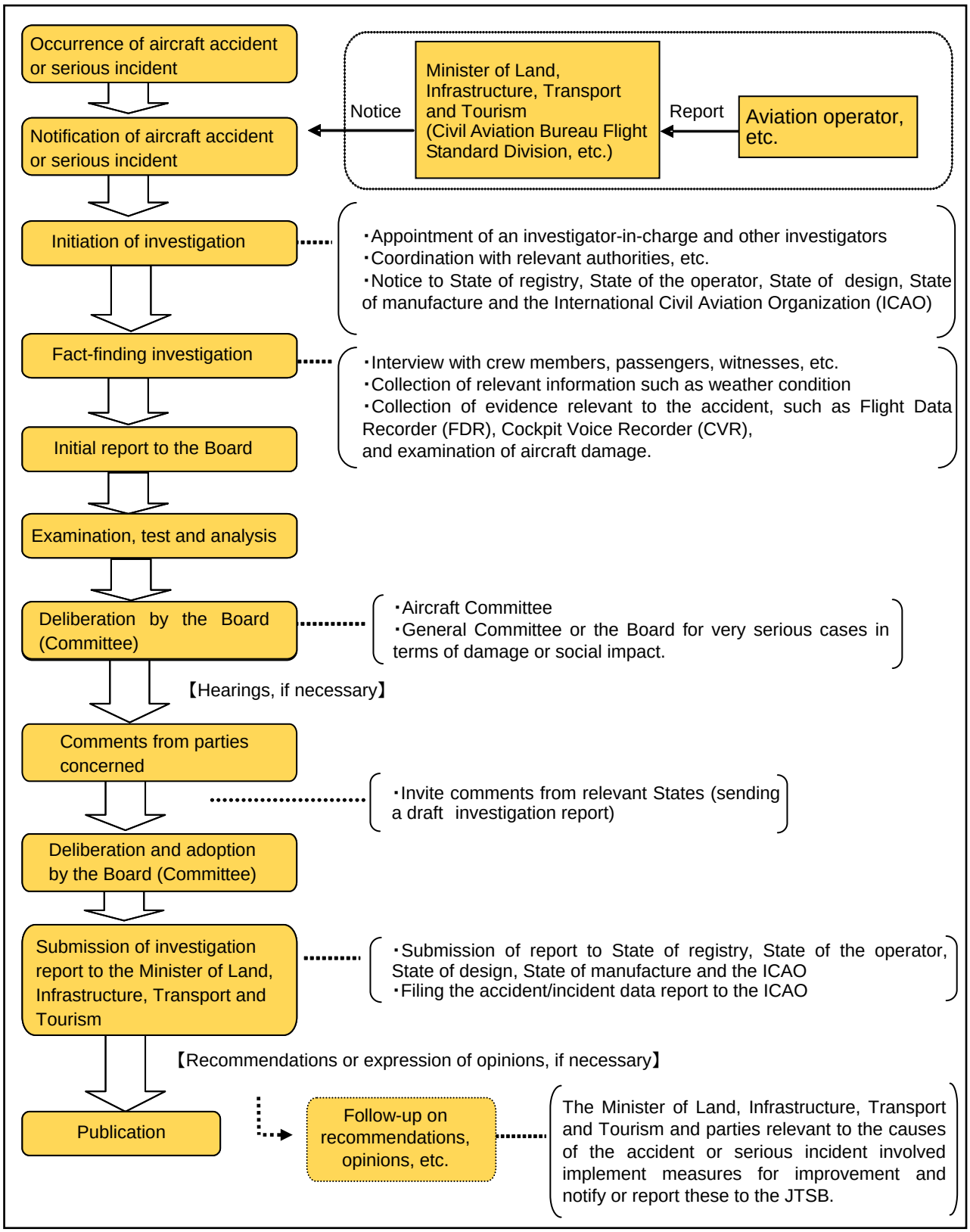
◎ Article 76-2 of the Civil Aeronautics Act

- When the pilot in command has recognized during flight that there was a danger of collision or contact with any other aircraft.
- When the pilot in command has recognized during flight that there is a danger of causing any of accidents listed in each item of paragraph 1, article 76 of the Civil Aeronautics Act, specified by Ordinances of the Ministry of Land, Infrastructure, Transport and Tourism.

◎ Article 166-4 of the Ordinance for Enforcement of the Civil Aeronautics Act (The case prescribed in the Ordinances of the Ministry of Land, Infrastructure, Transport and Tourism under Article 76-2 of the Civil Aeronautics Act)

1. Take-off from a closed runway or a runway being used by other aircraft or aborted take-off
2. Landing on a closed runway or a runway being used by other aircraft or attempt of landing
3. Overrun, undershoot and deviation from a runway (limited to when an aircraft is disabled to perform taxiing)
4. Case where emergency evacuation was conducted with the use for emergency evacuation slide
5. Case where aircraft crew executed an emergency operation during navigation in order to avoid crash into water or contact on the ground
6. Damage of engine (limited to such a case where fragments penetrated the casing of subject engine or a major damage occurred inside the engine)
7. Continued halt or loss of power or thrust (except when the engine(s) are stopped with an attempt of assuming the engine(s) of a motor glider) of engines (in the case of multiple engines, 2 or more engines) in flight
8. Case where any of aircraft propeller, rotary wing, landing gear, rudder, elevator, aileron or flap is damaged and thus flight of the subject aircraft could be continued
9. Multiple malfunctions in one or more systems equipped on aircraft impeding the safe flight of aircraft
10. Occurrence of fire or smoke inside an aircraft and occurrence of fire within an engine fire-prevention area
11. Abnormal decompression inside an aircraft
12. Shortage of fuel requiring urgent measures
13. Case where aircraft operation is impeded by an encounter with air disturbance or other abnormal weather conditions, failure in aircraft equipment, or a flight at a speed exceeding the airspeed limit, limited payload factor limit operating altitude limit
14. Case where aircraft crew became unable to perform services normally due to injury or disease
15. Case where parts dropped from aircraft collided with one or more persons
16. Case equivalent to those listed in the preceding items

2. Procedure of aircraft accident/incident investigation



3. Statistics of investigations of aircraft accidents and serious incidents

The JTSB carried out investigations of aircraft accidents and serious incidents in 2012 as follows:

Twenty-one accident investigations had been carried over from 2011, and 18 accident investigations newly launched in 2012. Fifteen investigation reports were published in 2012, and thereby 24 accident investigations were carried over to 2013.

Thirteen serious incident investigations had been carried over from 2011, and 10 serious incident investigations newly launched in 2012. Seven investigation reports and one interim report were published in 2012, and thereby 16 serious incident investigations were carried over to 2013.

Among the 22 reports published in 2012, one was issued with recommendations, one with safety recommendations, one with opinions, and two with remarks.

Investigations of aircraft accidents and serious incidents in 2012

(Cases)

Category	Carried over from 2011	Launched in 2012	Total	Published investigation report	(Recommendations)	(Safety recommendations)	(Opinions)	(Remarks)	Carried over to 2013	(Interim report)
Aircraft Accident	21	18	39	15	(1)	(0)	(0)	(0)	24	(0)
Aircraft serious incident	13	10	23	7	(0)	(1)	(1)	(2)	16	(1)

4. Statistics of investigations launched in 2012

The investigations launched in 2012 included 18 accidents, up four cases from 14 cases for the previous year, and 10 serious incidents, up four cases from six cases for the previous year.

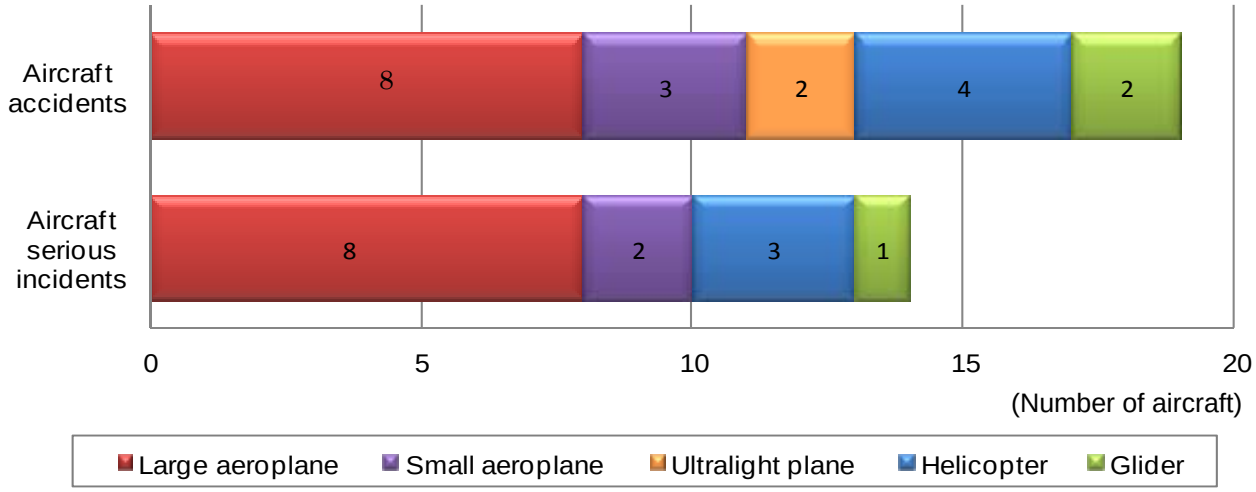
By aircraft category, eight of the accidents involved large aeroplanes*1 and three other cases concerned small aeroplanes*2, while two ultralight planes, four helicopters and two gliders were involved in the remaining cases. The serious incidents included eight cases involving large aeroplanes, two cases involving small aeroplanes, three cases involving helicopters and one case involving a glider.

*1 Large aeroplanes are aircraft with a maximum take-off weight of more than 5,700kg.

*2 Small aeroplanes are aircraft with a maximum take-off weight of 5,700kg or less, excluding ultralight planes.

Note: In aircraft accidents and serious incidents, two or more aircraft are sometimes involved in a single case. See details on Pages 8-11.

Number of aircraft accidents and serious incidents by aircraft category



In the 18 aircraft accidents, the number of casualties was 26, consisting of one death and 25 injured persons. In July 2012, four flight attendants sustained injuries due to the shaking of a large aeroplane. In August, a small aeroplane veered off the runway during landing and hit a worker on the ground, causing fatal injuries to the worker.

Number of casualties (aircraft accident)

(Persons)

2012							
Aircraft category	Dead		Missing		Injured		Total
	Crew	Passengers and others	Crew	Passengers and others	Crew	Passengers and others	
Large aeroplane	0	0	0	0	8	10	18
Small aeroplane	0	1	0	0	0	0	1
Ultralight plane	0	0	0	0	2	0	2
Helicopter	0	0	0	0	4	1	5
Glider	0	0	0	0	0	0	0
Total	0	1	0	0	14	11	26
	1		0		25		

5. Summaries of aircraft accidents and serious incidents which occurred in 2012

The aircraft accidents and serious incidents which occurred in 2012 are summarized as follows: The summaries are based on information available at the start of the investigations and therefore, may change depending on the course of investigations and deliberations.

(Aircraft accidents)

No.	Date and location	Operator	Aircraft registration number and aircraft type	Summary
1	January 4, 2012 Morito Town, Mito City, Ibaraki Prefecture	Private	JR7327 Max Enterprise Axis R503 (ultralight plane)	Refer to the No. 5 column on Page 13 of Section 6 “Publication of investigation reports.”
2	January 18, 2012 At about 1,000 ft high near Kitakojima Island, Ishigaki City, Okinawa Prefecture	Japan Coast Guard	JA720A Bombardier DHC-8-315 (large aeroplane)	The aircraft took off from Naha Airport for Ishigaki Airport for patrolling flight over the East China Sea. Just after making a left turn near Kitakojima Island, the aircraft had a collision with a bird and sustained substantial damage.
3	February 5, 2012 On runway of Sendai Airport	Air Nippon Co., Ltd.	JA8384 Airbus Industrie A320-200 (large aeroplane)	The aircraft took off from Osaka International Airport and approached Runway 27 of Sendai Airport under visual approach rules. When it performed a go-around over the runway, the aircraft had the lower side of its aft section hit the runway. The aircraft sustained substantial damage.
4	February 19, 2012 Karifuridake Temporary Helipad, Minami-Furano Town, Sorachi-gun, Hokkaido	HELL-SYS japan, Inc.	JA710H Eurocopter EC120B (rotorcraft)	The aircraft rolled over during taking off from Karifuridake Temporary Helipad and sustained damage. A pilot on board the aircraft suffered no injury. The aircraft sustained substantial damage.
5	March 31, 2012 On Runway A of Tokyo International Airport	Japan Airlines	JA701J Boeing 777-200 (large aeroplane)	The aircraft took off from Shanghai Airport and performed a go-around at Tokyo International Airport. At that time, the aircraft had the lower side of its aft section hit the runway. The aircraft sustained substantial damage.
6	April 28, 2012 On Yoshii River adjacent to Oku Gliding Field, Setouchi City, Okayama Prefecture	Private (Aircraft A)	JA21KA Sheibe SF25C (glider)	The Aircraft A, with a pilot in the left seat, took off from Oku Gliding Field in Setouchi City, Okayama Prefecture, while towing the Aircraft B with a trainee pilot on board. But both gliders dipped in Yoshii River adjacent to the gliding field just after the take-off and sustained substantial damage.
		Private (Aircraft B)	JA2376 Shempp-Hirth Discus b (glider)	
7	May 13, 2012 On dry riverbed of Tone River, Tamamura Town, Saba-gun, Gunma Prefecture	Private	Sorrell SNS8 Hiperlight R277L (ultralight plane)	Refer to the No. 15 column on Page 15 of Section 6 “Publication of investigation reports.”
8	June 18, 2012 At about 200 ft, above Ryugasaki Airfield, Ryugasaki City, Ibaraki Prefecture	IBEX Aviation Co., Ltd.	JA4135 Cessna 172P (small aeroplane)	When the aircraft was conducting consecutive touch-and-go training on Runway 08 of Ryugasaki Airfield after taking off from Chofu Airport, it had a collision with a bird during climbing and sustained substantial damage.

No.	Date and location	Operator	Aircraft registration number and aircraft type	Summary
9	June 20, 2012 On Runway A of Narita International Airport	All Nippon Airways	JA610A Boeing 767-300 (large aeroplane)	When the aircraft landed at Narita International Airport after taking off from Beijing Airport, it made a hard landing. In an after-arrival check, part of the fuselage was found deformed. Five passengers and four flight attendants sustained injuries.
10	June 29, 2012 Kawanehon-cho, Haibara-gun, Shizuoka Prefecture	Chubu Regional Bureau, Ministry of Land, Infrastructure, Transport and Tourism	JA6817 Bell 412EP (rotorcraft)	When the aircraft landed on a temporary helipad in Kawanehon-cho, Haibara-gun, Shizuoka Prefecture, it sustained substantial damage. The pilot and one passenger were injured.
11	July 5, 2012 At approximately 23,000 ft high about 150 km north of Narita International Airport	United Airlines	N224UA Boeing 777-200 (large aeroplane)	When the aircraft was flying toward Narita International Airport after taking off from Incheon International Airport (Republic of Korea), shakes occurred near the place mentioned in the “Date and location” column. One flight attendant was seriously injured, and three other FAs suffered slight injuries. There was no damage to the aircraft.
12	July 5, 2012 At approximately 11,300 m high about 160 km north-northwest of Tokyo International Airport	Korean Air	HL7473 Boeing 747-400 (large aeroplane)	While flying after taking off from Seoul (Gimpo) Airport, the aircraft was shaken near the place mentioned in the “Date and location” column. One passenger sustained injuries.
13	August 18, 2012 Otone temporary operation site Kawachi Town, Inashiki-gun, Ibaraki Prefecture	Private	JA3814 Cessna 172N Ram (small aeroplane)	When landing on Otone temporary operation site the aircraft veered off the runway to the left (to the south) and its right wing hit a person who was there for weeding work. The person sustained fatal injuries.
14	August 21, 2012 At approximately 12,200 m high about 26 km northwest of Izumo Airport	Asiana Airlines	HL8258 Airbus Industrie A330-300 (large aeroplane)	While flying after taking off from Honolulu Airport, the aircraft was shaken near the place mentioned in the “Date and location” column. Three passengers sustained injuries.
15	September 15, 2012 Temporary helipad, Kujukuri Town, Sanbu-gun, Chiba Prefecture	Private	JA120H Eurocopter EC120B (rotorcraft)	When the aircraft started hovering to move to the takeoff-landing area from the apron, its skid got caught on the ground and the aircraft fell on its side. Two persons on board the aircraft sustained injuries.
16	October 16, 2012 Above runway at Aguni Airport, Okinawa Prefecture	First Flying Co., Ltd.	JA5324 Britten Norman BN-2B-20 (small aeroplane)	After taking off from Aguni Airport for Naha Airport, the aircraft had a collision with a bird and sustained substantial damage.
17	November 19, 2012 Hirachinai, Otsu City, Shiga Prefecture	Nakanihon Air Service Co. Ltd.	JA9965 Aerospatiale AS332L1 (rotorcraft)	While the aircraft was hoisting up supplies near the place mentioned in the “Date and location” column” after taking off from Hira Temporary Helipad, a worker on the ground mistakenly touched the supplies. The worker stumbled and fell, and sustained injuries in the left wrist.
18	November 26, 2012 At approximately 10,900 m high over Shizuoka City, Shizuoka Prefecture	Japan Airlines	JA610J Boeing 767-300 (large aeroplane)	While flying after taking off from Narita International Airport, the aircraft was shaken near the place mentioned in the “Date and location” column. One passenger sustained injuries.

(Aircraft serious incidents)

No.	Date and location	Operator	Aircraft registration number and aircraft type	Summary
1	April 7, 2012 Fujigawa Gliding Field, Shizuoka City, Shizuoka Prefecture	Private	JA109B Globe G109B (glider)	The aircraft took off from the gliding field mentioned in the "Date and location" column for consecutive touch-and-go training, but when it made the first landing, the aircraft veered off the runway and stopped on grassy land.
2	July 5, 2012 About 5.6 km north of Naha Airport	China Eastern (Aircraft A)	B2332 Airbus Industrie A319-112 (large aeroplane)	The Aircraft A entered a runway despite earlier instructions by an air traffic controller to stand by before the runway. Therefore, the Aircraft B, which had obtained a landing clearance, performed a go-around on instructions from the air traffic controller.
		AirAsia Japan (Aircraft B)	JA01AJ Airbus Industrie A320-214 (large aeroplane)	
3	July 8, 2012 Temporary helipad at Asahikawa Red Cross Hospital, Hokkaido	Aero Asahi Corp.	JA6911 McDonnell MD900 (rotorcraft)	Just after the aircraft took off from the helipad mentioned in the "Date and location" column, its No. 1 engine stopped. As a result, the aircraft changed its destination to Asahikawa Airport and landed there.
4	July 8, 2012 On Runway 34 of Fukuoka Airport	Private (Aircraft A)	JA4178 Cessna 172RG (small aeroplane)	When the Aircraft A was approaching Runway 34 of Fukuoka Airport after receiving a landing clearance from an air traffic controller, the Aircraft B, which was to depart from the runway, entered there after it was instructed by the controller to stand by on the runway. The controller then instructed the Aircraft A to perform a go-around.
		Japan Air Commuter Co., Ltd. (Aircraft B)	JA847C Bombardier DHC-8-402 (large aeroplane)	
5	October 10, 2012 About 8.5 miles (about 16 km) southwest of Nagoya VORTAC	Diamond Air Service Inc. (Aircraft A)	JA30DA Mitsubishi MU-300 (large aeroplane)	The Aircraft A took off from Nagaya Airfield and conducted training in a training airspace over the Pacific. After finishing the training, the aircraft flew toward Manba-ohashi Bridge via Nagoya Port under VFR in order to return to Nagoya Airfield. When the aircraft made a left turn at about 2,000 ft over the bridge, the aircraft came close to the Aircraft B flying southwestwardly from behind. (A near miss report)
		Nakanihon Air Service Co., Ltd. (Aircraft B)	JA9745 Bell 206B (rotorcraft)	
6	October 20, 2012 At approximately 4,050 m high about 25 km west of Tokyo International Airport	JAL Express	JA342J Boeing 737-800 (large aeroplane)	While the aircraft was climbing after taking off from the airport mentioned in the "Date and location" column, its instruments showed a decrease in the revolution of the No. 1 engine and an increase in the exhaust gas temperature near the place mentioned in the "Date and location" column. The engine was then disengaged, and requested priority in air traffic control, the aircraft turned back and landed on the airport.

No.	Date and location	Operator	Aircraft registration number and aircraft type	Summary
7	October 31, 2012 On runway of Yakushima Airport	Private (Aircraft A)	JA35BB Eurocopter AS350B3 (rotorcraft)	The Aircraft B landed at the airport mentioned in the "Date and location" column and then, started taxiing back to the apron after turning around at the runway end on the northwestern side. But the Aircraft A, which had entered the same runway to stand by, took off before the Aircraft B's exit from the runway.
		Japan Air Commuter Co., Ltd. (Aircraft B)	JA849C Bombardier DHC-8-402 (large aeroplane)	
8	November 25, 2012 Satsuma-Iwojima Airfield, Mishima Village, Kagoshima-gun, Kagoshima Prefecture	Private	JA3689 Fuji Heavy Industries FA-200-180 (small aeroplane)	When the brakes were applied upon landing on the airfield mentioned in the "Date and location" column, the aircraft turned to the right and skidded out to grassy land east of the runway, and fell on its side.
9	December 8, 2012 On eastern runway end of Shonai Airport	All Nippon Airways	JA57AN Boeing 737-800 (large aeroplane)	When the aircraft landed on the airport mentioned in the "Date and location" column, it overran and stopped on grassy land.
10	December 25, 2012 On runway of Hanamaki Airport	J-Air Corp.	JA202J Bombardier CL-600-2B19 (large aeroplane)	When the aircraft landed on the airport mentioned in the "Date and location" column, the aircraft veered off the runway to the left (to the east), and stopped with its nose landing gear out on grassy land.

6. Publication of investigation reports

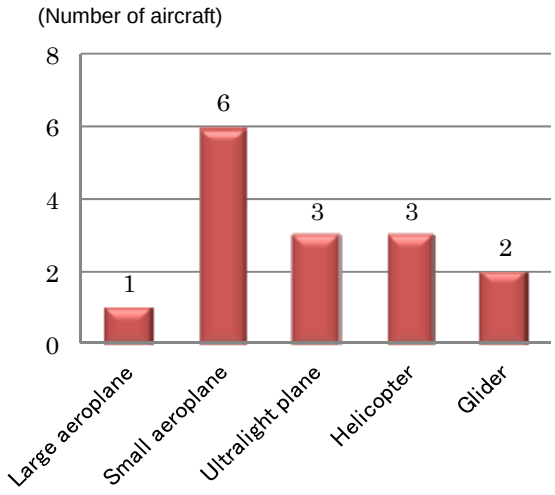
The number of investigation reports of aircraft accidents and serious incidents published in 2012 was 22, consisting of 15 aircraft accidents and seven serious incidents.

Looking those accidents and serious incidents by aircraft category, the accidents involved one large aeroplane, six small aeroplanes, three ultralight planes, three helicopters and two gliders. The serious incidents involved eight large aeroplanes and one small aeroplane.

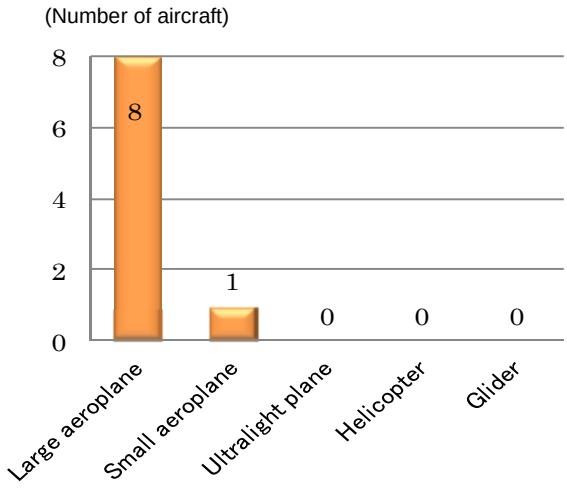
Note: In aircraft accidents and serious incidents, two or more aircraft are sometimes involved in a single case. See details on Pages 12-17.

In the 15 accidents, the number of casualties was 28, consisting of 14 deaths and 14 injured persons.

Aircraft accident reports (15 cases) published in 2012



Aircraft serious incident reports (seven cases) published in 2012



The investigation reports for aircraft accidents and serious incidents published in 2012 are summarized as follows:

List of published investigation reports on aircraft accidents (2012)

No.	Date of publication	Date and location	Operator	Aircraft registration number and aircraft type	Summary
1	January 27, 2012	February 18, 2011 On runway of Yao Airport	Showa Aviation Co., Ltd.	JA8828 Fairchild Swearingen SA226-AT (small aeroplane)	When the aircraft landed at Yao Airport, its airframe was damaged. The aircraft sustained substantial damage.
2	February 24, 2012	October 11, 2009 In the mountains about 6 km east of Mt. Biei, Hokkaido	Private	JA2503 Valentine/FFT KIWI (glider, single-seater)	The aircraft took off from Biei Gliding Field by being towed by another airplane, but it made an emergency landing in the mountains about 6 km east of Mt. Biei, Hokkaido. The pilot was slightly injured. The aircraft sustained substantial damage.

No.	Date of publication	Date and location	Operator	Aircraft registration number and aircraft type	Summary
3	February 24, 2012	July 25, 2010 In the mountains in Otaki, Chichibu City, Saitama Prefecture	Saitama Prefectural Government (Operated by contracted Honda Airways Co., Ltd.)	JA31TM Eurocopter AS365N3 (rotorcraft)	The aircraft took off from a temporary helipad in Otaki, Chichibu City, Saitama Prefecture, for a rescue operation, but it crashed while hoisting down two rescuers (one from Saitama Disaster Prevention Aviation Unit and a firefighter from Chichibu Fire Brigade) to a ravine upstream of Takigawa. The pilot in command, a pilot, and two rescuers from Saitama Disaster Prevention Aviation Unit and a firefighter from Chichibu Fire Brigade sustained fatal injuries. The aircraft was destroyed.
4	March 30, 2012	August 18, 2010 Near Sanagijima Island, Tadotsu-cho, Nakatado-gun, Kagawa Prefecture	Japan Coast Guard	JA6796 Bell 412EP (rotorcraft)	The aircraft took off from Hiroshima Airport for patrolling flight in the eastern part of the Seto Inland Sea. While flying near Sanagijima, Tadotsu-cho, Nakatado-gun, Kagawa Prefecture, the aircraft hit overhead wires extended between Sanagijima and Oshima and crashed into the sea. The pilot in command and four other persons aboard the aircraft suffered fatal injuries. The aircraft was destroyed.
5	March 30, 2012	January 4, 2012 Morito Town, Mito City, Ibaraki Prefecture	Private	JR7327 Max Enterprise Axis R503 (ultralight plane)	The aircraft took off from Oarai temporary operation site in Mito City, Ibaraki Prefecture. While running on the runway after landing on the operation site, the aircraft sustained damage. The pilot was seriously injured.
6	April 27, 2012	June 12, 2011 At Shinshinotsu Gliding Field, Shinshinotsu-mura, Ishikari-gun, Hokkaido	Private	JA2168 Sportavia SF25C (motor glider, two-seater)	The aircraft sustained damage to its airframe upon landing at Shinshinotsu Gliding Field in Shinshinotsu-mura, Ishikari-gun, Hokkaido, after finishing a familiarization flight. The captain was seriously injured and one passenger suffered a slight injury. The aircraft sustained substantial damage.
7	April 27, 2012	August 31, 2011 Irrigation canal in Takahama, Ishioka City, Ibaraki Prefecture	Private	JR1417 Sport Aviation Aircraft Avenger R447L (ultralight plane, single-seater)	When the aircraft was flying toward Kasumigaura after taking off from Chiyoda temporary operation site, its engine thrust went down and the aircraft struck an overhead wire. Then, the aircraft crashed in an irrigation canal in Takahama, Ishioka City, Ibaraki Prefecture. The pilot was slightly injured. The aircraft was destroyed.

No.	Date of publication	Date and location	Operator	Aircraft registration number and aircraft type	Summary
8	June 29, 2012	November 5, 2010 On runway of Miyazaki Airport	Civil Aviation College	JA4167 Beechcraft A36 (small aeroplane)	The aircraft took off from Miyazaki Airport for solo flight training and when it landed at the airport, it became immobile on the runway. No one was injured in the accident. The aircraft sustained substantial damage.
9	June 29, 2012	April 27, 2011 At approximately 25,000 ft high about 27 nm east-southeast of Kushimoto, Wakayama Prefecture	All Nippon Airways	JA8569 Boeing 767-300 (large aeroplane)	While flying for Tokyo International Airport after taking off from Miyazaki Airport, the aircraft was shaken at an altitude of approximately 25,000 ft about 27 nm east-southeast of Kushimoto. One flight attendant was seriously injured and two passengers and two FAs sustained slight injuries. There was no damage to the aircraft.
10	June 29, 2012	July 10, 2011 At about 11,000 ft high above Honda Airport	Tokyo Skydiving Club	JA55DZ Cessna 208B (small aeroplane)	The aircraft took off from Honda Airport and 18 skydivers exited from the aircraft into the airspace over the airport. After the aircraft returned to the airport, damage to the aircraft was found. One skydiver was injured. The aircraft sustained substantial damage.
11	June 29, 2012	July 14, 2011 Sabaekoizumi Temporary Helipad, Koizumi, Sabae City, Fukui Prefecture	Private	JA007J Robinson R22 Beta (rotorcraft)	The aircraft made a roll-over and sustained damage when it landed at Sabaekoizumi Temporary Helipad after finishing a familiarization flight. The pilot in command was seriously injured and a passenger suffered slight injuries. The aircraft sustained substantial damage.
12	July 27, 2012	July 28, 2010 In the mountains east of Mt. Iwabe-dake, Fukushima Town, Matsumae-gun, Hokkaido Prefecture	Nakanihon Air Service Co., Ltd.	JA3902 Cessna TU206G (small aeroplane)	The aircraft took off from Niigata Airport for Sapporo Airfield, but it did not arrive there even after the estimated arrival time and went missing. The aircraft was found crashed in the mountains east of Mt. Iwabe-dake in Fukushima Town, Matsumae-gun, Hokkaido, two days later. The pilot in command and one passenger suffered fatal injuries. The aircraft was destroyed.

No.	Date of publication	Date and location	Operator	Aircraft registration number and aircraft type	Summary
13	September 28, 2012	January 3, 2011 On the south-southeastern slope of Mt. Yago, approximately 14 km northeast of Kumamoto Airport	Private	JA701M Piper PA-46-350P (small aeroplane)	The aircraft went missing after taking off from Kumamoto Airport for a leisure flight to Kitakyushu Airport. On the following day, the aircraft was found on the south-southeastern slope of Mt. Yago, about 14 km northeast of Kumamoto Airport apparently after colliding with the mountain slope. The pilot in command and a passenger suffered fatal injuries. The aircraft was destroyed. *** The report included Recommendations**
14	September 28, 2012	March 24, 2011 On runway of Kumamoto Airport	Honda Airways Co., Ltd.	JA33UK Cessna 172S (small aeroplane)	The aircraft took off from Kumamoto Airport for solo flight training. The aircraft was damaged when it bounced during landing at the airport. No one was injured. The aircraft sustained substantial damage.
15	December 21, 2012	May 13, 2012 On dry riverbed of Tone River in Tamamura Town, Sawa-gun, Gunma Prefecture	Private	No registration number Sorrell SNS8 Hiperlight R277L (ultralight plane)	When the aircraft was flying along a traffic pattern after taking off from a temporary operation site adjacent to Tone River in Shiba Town, Isezaki City, Gunma Prefecture, its engine came to a halt. The aircraft made an emergency landing on the dry riverbed on the other side of the river in Tamamura Town, Sawa-gun, Gunma Prefecture, and the aircraft was damaged. The pilot was slightly injured. The aircraft was destroyed.

List of published investigation reports on aircraft serious incidents (2012)

No.	Date of publication	Date and location	Operator	Aircraft registration number and aircraft type	Summary
1	January 27, 2012	July 28, 2010 At approximately 11,700 ft high about 46 km east-southeast of Narita International Airport	United Airlines	N219UA Boeing 777-200 (large aeroplane)	While the aircraft was climbing after taking off from Narita International Airport for San Francisco International Airport, its right engine came to a halt above the sea about 46 km east-southeast of Narita International Airport. The aircraft then flew back to Narita International Airport and landed there.

No.	Date of publication	Date and location	Operator	Aircraft registration number and aircraft type	Summary
2	January 27, 2012	October 26, 2010 At approximately 6,800 ft high about 30 km east of Asahikawa City, Hokkaido	Air Nippon Co., Ltd.	JA55AN Boeing 737-800 (large aeroplane)	The aircraft took off from Chubu Centrair International Airport for Asahikawa Airport. When the aircraft was descending toward Asahikawa Airport following an air traffic controller's instructions near the destination aerodrome, its ground proximity warning system issued a warning at about 6,800 ft about 50 km east of Asahikawa City, Hokkaido. Its flight crew took an emergency maneuver and landed at Asahikawa Airport. *** The report included Opinions**
3	March 30, 2012	October 23, 2010 At approximately 2,000 ft high over city area about 2 km southeast of Yokota Airfield	Kawasaki Air Co., Ltd.	JA3818 Cessna TU206G (small aeroplane)	The aircraft took off from Chofu Airfield for an aerial survey. After completing its work near the mouth of Kurobe River in Toyama Prefecture, the aircraft changed its destination to Chofu Airfield from Niigata Airport and when it was flying back to Chofu Airfield, it declared a state of emergency due to fuel starvation and landed at Yokota Airfield.
4	April 27, 2012	May 10, 2011 About 3 km northwest of Fukuoka Airport	Japan Air Commuter Co. Ltd. (Aircraft A) All Nippon Airways (Aircraft B)	JA844C Bombardier DHC-8-402 (large aeroplane) JA602A Boeing 767-300 (large aeroplane)	The Aircraft A was approaching Fukuoka Airport after receiving a landing clearance from an air traffic controller, while the Aircraft B entered the runway 16 via the taxiway E2 after receiving a take-off clearance. The Aircraft A requested the air traffic controller to confirm the landing clearance, and the controller instructed it to perform a go-around.
5	May 25, 2012	November 28, 2010 About 4 nm southwest of Chubu Centrair International Airport	Evergreen International Airlines, Inc.	N482EV Boeing 747-200 (converted freighter model) (large aeroplane)	When the aircraft was climbing after taking off from Runway 36 of Chubu Centrair International Airport for Anchorage International Airport, the No. 2 engine thrust indication dropped with strong aircraft vibrations. After shutting down the engine and jettisoning its fuel, the aircraft turned back and landed at Chubu Centrair International Airport.
6	June 29, 2012	August 15, 2010 At approximately 5,500 ft high about 11 km west of Sendai Airport	Japan Airlines International Co., Ltd.	JA002D McDonnell Douglas MD-90-30 (large aeroplane)	The aircraft took off from Sendai Airport for Fukuoka Airport, but during its take-off climb, the aircraft declared a state of emergency upon the activation of the right engine fire warning alarm at about 5,500 ft. The right engine was shut down while the fire-extinguishing system was activated. The aircraft then flew back to Sendai Airport and landed there. After landing, heat damage was confirmed inside the cowling of the right engine. *** The report included Safety recommendations**

No.	Date of publication	Date and location	Operator	Aircraft registration number and aircraft type	Summary
7	August 31, 2012	December 26, 2010 On Runway 34 at Fukuoka Airport	Air Busan Co., Ltd. (Aircraft A)	HL7517 Boeing 737-400 (large aeroplane)	The Aircraft A was taxiing toward Runway 34 at Fukuoka Airport for take-off to Gimhae International Airport (Busan). Meanwhile, the Aircraft B was approaching Fukuoka Airport upon receiving a landing clearance on Runway 34. Because the Aircraft A entered the runway, the Aircraft B performed a go-around under an air traffic controller's instructions.
			JAL Express Co., Ltd. (Aircraft B)	JA8998 Boeing 737-400 (large aeroplane)	

7. Summaries of recommendations and opinions

There were one safety recommendations, one recommendations and one opinions in 2012, which are summarized below:

(1) Safety recommendations (one case)

○ In view of the results of the investigation of the serious incident involving McDonnell Douglas MD-90-30 (large aeroplane), registered JA002D, operated by Japan Airlines International, the JTSB made safety recommendations to the Federal Aviation Administration of the United States on June 29, 2012 as follows:

In view of the result of this serious incident investigation, the JTSB recommends that the FAA urge the engine manufacturer to take the following measures:

In the serious incident, it is highly probable that the fatigue crack originating from the outer diameter of the No.4 Bearing Scavenge Tube progressed into the fracture, whereas the Tube is covered with the heat shield, making it impossible to have a direct inspection of the relevant spot during a regular maintenance work. Therefore, it is recommended that the manufacturer review the tube design and overhaul inspection method thereof in order to prevent the recurrence of similar cases.

(2) Recommendations (one case)

○ In view of the results of the investigation of the accident involving a privately owned Piper PA-46-350P (small aeroplane), registered JA701M, the JTSB made recommendations to the Minister of Land, Infrastructure, Transport and Tourism on September 28, 2012 as follows:

It is highly probable that the aircraft collided with the mountain slope during its in-cloud post-takeoff climb with a low climb rate under VFR. It is probable that the PIC might have acquired the latest weather information over the radio; however, it is highly probable that he took off without acquiring a necessary weather briefing from the weather station at Kumamoto Airport.

In the past five years there were four cases where VFR flights of small aircraft (helicopters inclusive) ended up with accidents. The four cases are as follows:

· A Cessna TU206GU, JA3902, crashed into the mountain slope east of Mt. Iwabe, Fukushima-town, Matsumae-gun, Hokkaido Prefecture in July 2010.

· A Robinson R44II, JA32CT, crashed about 15 km southeast of Tajima Airport, Hyogo Prefecture in July 2009.
· An Aerospatiale AS350B, JA9755, crashed off Cape Omasaki, Oma-cho, Shimokita-gun, Aomori Prefecture in July 2008.
· A Cessna 404, JA5257, crashed into the mountain slope near the top of Mt. Ena, Nakatsugawa City, Gifu Prefecture in November 2007.

The highly probable causes of these accidents are insufficient collection of weather information and non-execution of return to the departure airport upon an encounter with devastating weather conditions.

The Civil Aviation Bureau, MLIT issued the directive of the Operations Director titled as "Measures to be taken for safe VFR flights (Kokukuko No. 86, dated April 30, 2002)", to the All Japan Air Transport and Service Association and the Japan Aircraft Pilot Association. The contents of the directive are believed to be appropriate, but as mentioned above, accidents in which aircraft flew in clouds under VFR have occurred despite the issuance of the directive.

In light of this accident and similar accidents mentioned above, the JTSB, in accordance with Paragraph 1, Article 26, the Act for Establishment of the Japan Transport Safety Board, recommends the Minister, MLIT as follows:

In order to prevent the accidents in in-cloud flight under VFR, the Civil Aviation Bureau publishes again the following contents to the pilot associations and also make them known to individual pilots using the opportunities of the newly introduced system "Review System on Specific Pilot Competence" (2012 MLIT Ordinance No. 22).

(1) Commence flying only when VMC is maintained all across the enroute based on the latest weather information.
(2) Prepare an alternative plan in case of deteriorating weather while collecting weather information on enroute.
(3) Decide well in advance on returning to the departure airport or landing at a proper place.

(3) Opinions (one case)

○ In view of the results of the investigation of the serious incident involving a Boeing 737-800 (large aeroplane), registered JA55AN, operated by Air Nippon Co., Ltd., JTSB stated opinions to the Minister of Land, Infrastructure, Transport and Tourism on January 27, 2012 as follows:

It is highly probable that the serious incident occurred because an aircraft which belongs to Air Nippon Co., Ltd., experienced a ground proximity and its flight crew took an emergency maneuver responding to its EGPWS warnings during its descent toward its destination aerodrome, Asahikawa Airport, under the ATC instructions. It is probable that the ground proximity occurred because: an air traffic controller instructed the aircraft to descend below the MVA without confirming it; its flight crew did not question the Radar Controller on the descent instructions in spite of awareness of being vectored to the east toward the mountainous area.

In view of the investigation results of the serious incident, the Japan Transport Safety Board states the following opinion to the Minister of Land, Infrastructure, Transport and Tourism pursuant to Article 28 of the Act for Establishment of the Japan Transport Safety Board in

order to secure the safety of air traffic:

Efforts must be made to expedite the introduction of a system to better support air traffic controllers so that they can have situation awareness more easily when ATC instructions were issued for an aircraft to descend below the MVA, or when an aircraft descended below the MVA.

8. Remarks

The JTSB made remarks on the following two aircraft accidents in 2012.
Refer to the investigation reports for details of the remarks.

(1) A rotorcraft, registered JA31TM, owned by Saitama Prefectural Government and operated by contracted Honda Airways Co., Ltd., crashed during a rescue operation

(Published on February 24, 2012)

http://www.mlit.go.jp/jtsb/eng-air_report/JA31TM.pdf

(2) A Beechcraft A36, registered JA4167, operated by Civil Aviation College, became immobile on the runway.

(Published on June 29, 2012)

http://www.mlit.go.jp/jtsb/eng-air_report/JA4167.pdf

9. Information dissemination in the process of investigations

The JTSB disseminated information on the following two aircraft serious incidents in 2012.
The information is summarized below.

(1) Aircraft serious incident involving a privately owned Globe G109B

(Disseminated on April 19, 2012)

The JTSB provided information regarding the aircraft serious incident (runway deviation) involving Globe G109B, which occurred on April 7, 2012, as follows to the Civil Aviation Bureau, the Ministry of Land, Infrastructure, Transport and Tourism:

As a result of the investigation up until now, the following point has been clarified with regard to the area where a main landing gear is connected to the fuselage:

・The bolt and nut with which the right main landing gear was connected to the fuselage had fallen off, while the screw threads had been worn out. The nuts used in the area where both main landing gears had been connected to the fuselage were not those designated by the manufacturer.

(2) Aircraft serious incident involving Bell 206B, operated by Nakanihon Air Service Co., Ltd.

(Disseminated on October 19, 2012)

The JTSB provided information regarding the aircraft serious incident (near miss) involving

Bell 206B, operated by Nakanihon Air Service Co., Ltd., which occurred on October 10, 2012, as follows to the Civil Aviation Bureau, the Ministry of Land, Infrastructure, Transport and Tourism:

The JTSB is working on the investigation of the near miss incident reported by the captain of a Bell 206B, registered JA9745, which occurred on October 10, 2012. Our investigation up until now identified other aircraft involved in the near miss, and we provide the information concerned as follows:

The investigation is still under way on specifically how the near miss occurred and the causes for the incident.

1. Registration number
   JA30DA（Mitsubishi MU-300）

2. Operator
   Diamond Air Service Inc.

3. Persons on board
   Seven persons（the PIC, the first officer, five others）

4. Summary of the history of the flight
   JA30DA took off from Nagaya Airfield at 9:39 Japan Standard Time and conducted training in a training airspace over the Pacific. After finishing the training, the aircraft flew toward Manba-ohashi Bridge via Nagoya Port under VFR in order to return to Nagoya Airfield. When the aircraft made a left turn at about 2,000 ft over the bridge, the aircraft came close to JA9745 flying southwestwardly from its left behind.

Column

Operational training for small aeroplanes (fixed wing)

Investigations of aircraft accidents require a broad range of knowledge and a high level of professionalism. Therefore, we continuously provide various kinds of lectures and training.

This column takes up operational training for a small aeroplane (Cessna 172) as part of these lectures and training.

In fiscal 2012, two investigators with no experience in aircraft operations received this training. (They previously served as an air traffic controller and an aircraft inspector.) This training is aimed at deepening trainees' knowledge about aircraft operations in order to facilitate their jobs as investigators, rather than having them obtain licenses. The training has curriculums which enable participants to obtain a broad range of experience in a short period of time.

First of all, trainees receive class training, which include curriculums not only about aircraft operations and how to handle the Cessna aircraft but also about aeronautical weather, air traffic control, aeronautical engineering and others.

The class training is followed by actual training for aircraft operations. Initially, trainees take off from Chofu Airfield in suburban Tokyo and perform such training as basic airworks, low-speed flying, and stall and recovery in a training airspace established over Saitama Prefecture, and then, they return to Chofu Airfield. These practices are repeated for several days.

When trainees have almost learned the basic airworks, take-off and landing training starts. Because there is no airfield in Tokyo where take-off and landing training can be performed, trainees take off from Chofu Airfield and then, usually move to a temporary operation site in Ibaraki Prefecture while performing mainly basic airworks. They perform take-off and landing training there four to eight times. Various kinds of training are also performed enroute back to Chofu Airfield. This kind of training is continuously performed for two weeks. Eventually, trainees obtain about 20 hours of flight experience and practice take-off and landing about 45 times.

During this training, trainees sometimes experience surprise situations, such as big aircraft bounces after an unsuccessful landing, failure to catch words in air traffic communication while excessively concentrating on aircraft maneuvering, and an insufficient watch-out of the situation around the aircraft. Of course, because the trainee is accompanied with a veteran instructor on board the plane, a dangerous situation actually does not occur.

However, having experience in these surprise situations and understanding the psychological state of pilots and trainees contribute to facilitating the investigations of causes for aircraft accidents and incidents.

"I've understood things like the gyroscopic precession, propeller slipstream and air currents by myself by reading documents. However, the feeling I physically experienced in the actual training was quite different from what I had imagined before," one participant recalled after finishing the training. This indicates the training can be a good incentive for investigators who tend to be inclined toward knowledge from books.

Column

Importance of PR activities and encouragement

Our Duty Improvement Action Plan, fully enforced from FY 2012, calls for providing information about our activities more actively.

The serious incident involving a Boeing 787 which occurred in January 2013 turned out to be an extremely good opportunity for implementing the initiative sought in the Action Plan.

Lithium-ion battery installed on the Boeing 787 which had been bound from Yamaguchi-Ube Airport to Haneda Airport on January 16, 2013 generated heat and got greatly damaged. As a result, the aircraft landed on Takamatsu Airport as the nearest aerodrome.

In the preceding week, a fire broke out of lithium-ion battery installed on the same type of aircraft when it was being checked after passengers disembarked from the aircraft upon its landing on Boston's Logan International Airport of the United States. The fire was put out by firefighters. This type of aircraft had been closely watched as an ultramodern airplane equipped with many state-of-the-art technologies since the development stage. Therefore, these incidents drew strong attention from various quarters.

On the night of the day when the incident occurred at Takamatsu Airport, five designated investigators arrived at the scene. They started an investigation in front of rows of cameras set by media organizations. Our staff there had opportunities to speak to the press almost every day before and after the investigation and explained the progress of their investigation.

Meanwhile, in Tokyo, we also had lectures for the press about the incident many times, because there were a lot of requests for providing information about the findings and the progress of the investigation. These lectures were organized every day in the first month and later twice a week for about three months.

This was truly unusual for us, and to be honest, we were not so experienced in this kind of lecture. We realized how difficult it is to accurately convey what we mean to others and to answer to their points of interest appropriately

We paid attention particularly to the following points during these lectures:

(1) Convey facts accurately

(2) Separate facts and thoughts (consideration)

(3) Explain unknown things as unknown.

(4) Carefully handle information based on statements and voice recorder data

It is quite rare that causes for aircraft accidents and incidents are found quickly at the investigation site. This is the case not only for this incident but also for other cases. The causes are usually clarified step by step through steady efforts. The whole picture of each case can be revealed only while checking whether the hypothesis may not be biased or erroneous from the point of view of the Board.

This process is time-consuming and we believe that public confidence in our activities can be improved by providing factual information, such as about what happened, to the people even during the investigation.

Since the occurrence of the incident up until now, we have received a lot of encouraging words and technical advices from many people, apparently in a feedback to our activities. These messages came from such persons as those who were engaged in the initial stage of development for lithium-ion battery and very active electric and electronic engineers, and they equally hoped to use their knowledge to help clarify the causes. Their messages also told us their great expectations for our activities. Please allow us to express our thanks to these people here.

Finally, we would like to refer to a magazine article which took up the Boeing 787 case. The article said, “The JTSB disclosed materials about the progress of their investigation in a timely manner. Their way of disclosure was very much improved compared to the previous style.” This made us feel that we have been rewarded for our efforts for better information disclosure.

10. Summaries of major aircraft accident and serious incident investigation reports

The aircraft crashed while hoisting down rescuers in a ravine upstream

Eurocopter AS365N3, registered JA31TM, owned by Saitama Prefectural Government

Summary of the accident: A Eurocopter AS365N3, registered JA31TM, owned by Saitama Prefectural Government, took off from a temporary helipad in Otaki, Chichibu City, Saitama Prefecture, at 10:48 Japan Standard Time on July 25 (Sunday), 2010 for a rescue operation. The aircraft, while hoisting down two rescuers (one from the Saitama Disaster Prevention Aviation Unit and a firefighter from the Chichibu Fire Brigade) to a ravine upstream of Takigawa, crashed around 11:03.

Of seven persons on board, two hoisted-down persons survived; however, five persons (a pilot in command, a pilot, two rescuers from the Saitama Disaster Prevention Aviation Unit and a firefighter from the Chichibu Fire Brigade) sustained fatal injuries.

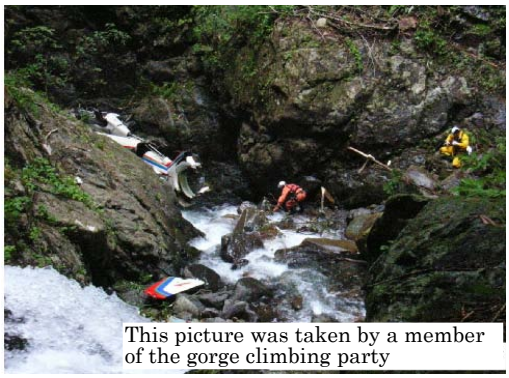
The aircraft was destroyed; however, no fire broke out.

Findings

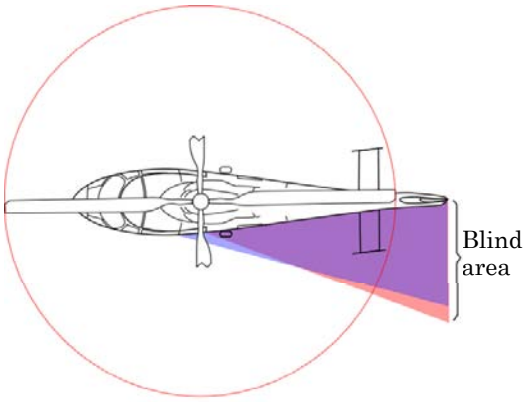
(1) Many scratch marks seemingly caused by induced foreign objects were observed in the inside of the Fenestron, while pieces of wood were found trapped in the tail rotor assy. Based on these findings, it is very likely that the first abnormal phenomenon occurred when the tail rotor hit trees.

(2) Several trees on the right bank of the accident site had been broken, while a fragment of the black blade was found at the root of the tree on the right bank about 23 m above the rescuers' landing point. Further, broken trees with scratch marks were found in the plunge pool, and there were trees with branches chopped on the right bank. Based on the findings, it is very likely that the Aircraft had its main rotor hit against trees while spinning.

(3) It is not certain whether the pilot in command took actions for confirming or made instructions for confirming obstacles in the aft on the left side before having the aircraft hover to the left to adjust its position, but it is very likely that the looking out toward the left aft was not appropriate.

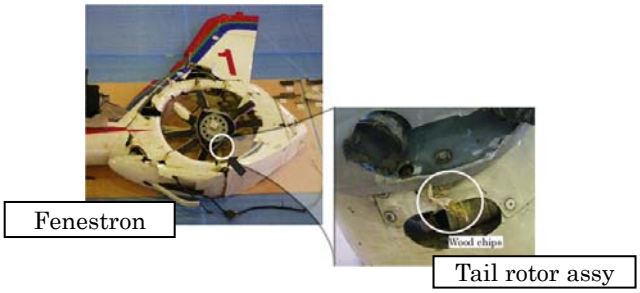


Just after Occurrence of Accident



Blind Area in Aft Left Section of the Aircraft

Legend:
Blue part denotes Blind area from the left pilot station seen through the cabin window.
Red part denotes Blind area from the cabin rear seat.



Probable causes: It is very likely that the aircraft crashed when it hovered to the left to adjust the hoist descent position without appropriate looking out, the Fenestron's tree contact developed into a loss of yaw control followed by main rotor tree strike.

The fact that the aircraft, without taking full advantage of long hoist cable, lowered its AGL (Above Ground Level) altitude very likely contributed to the Fenestron's tree contact.

For details, please refer to the investigation report. (published on February 24, 2012)
http://www.mlit.go.jp/jtsb/eng-air_report/JA31TM.pdf

The aircraft became immobile on runway after landing after solo flight training

Beechcraft A36, registered JA4167, operated by Civil Aviation College

Summary of the accident: A Beechcraft A36, registered JA4167, operated by the Civil Aviation College, took off from Miyazaki Airport for solo flight training at 13:09 Japan Standard Time on November 5 (Friday), 2010. The aircraft landed at Miyazaki Airport and then became immobile on the runway around 13:49.

There was one trainee pilot on board, who did not sustain any injuries.

The aircraft sustained substantial damage, but there was no outbreak of fire.

Findings

When performing a landing, it is important to keep the aircraft in the proper landing attitude on touchdown. To achieve this, it is important to properly adjust the approach speed and perform a flare*1 as the aircraft sinks. In this accident, given the insufficient deceleration and incorrect approach with the flare too moderate relative to the sinking of the aircraft, it is probable that the aircraft did not touchdown with a proper landing attitude.

Accident Aircraft

As a result, it is probable that the aircraft bounced at touchdown due to the improper reduction in airspeed and rate of descent, thus touched down with residual lift and the impact of the landing gear as it hit the runway.

It is probable that, after touchdown, the aircraft bounced in a near level attitude and touched down again on the nose gear first, followed immediately by the main gear, and that, with the impact of the second touchdown, the aircraft bounced again in porpoising*2 with the nose up steeply.

It is probable that in the following touchdown, the aircraft touched down on the nose gear in the steep nose down attitude, which caused the nose gear to sustain damage, and the aircraft then skidded about 292 m on the runway with the nose pushed against the runway surface before becoming immobile.

*1 A "flare" maneuver is made immediately before touchdown in which the aircraft's nose is pulled up to reduce the airspeed and the rate of descent to help minimize landing impact.

*2 In "porpoising," the aircraft repeats a cycle of touchdown and lifting similar to bounce.

Probable causes: It is highly probable that the accident occurred as follows: the aircraft bounced at touchdown, and subsequently fell into a state of porpoising without performing a go-around, eventually touched down with the nose gear severely hitting the runway first, sustained damage to the airframe and then became immobile on the runway.

Regarding the reason why the aircraft bounced at touchdown, it is probable that, with the airspeed still slightly faster than it should have been, after reducing the engine power to idle on passing the runway threshold, the trainee judged that performing a flare in an ordinary manner under the circumstances would cause the aircraft to fly over the intended touchdown point and therefore he eased up on the flare. As a result, it is probable that neither airspeed nor rate of descent was reduced and the aircraft touched down with residual lift, which resulted in bouncing at touchdown due to the impact of the landing gear as it hit the runway.

As for the reason that the trainee did not perform a go-around even after the aircraft bounced, it is probable that he did not have the knowledge and skills that would have enabled him to perform a go-around without hesitation upon bounce.

For details, please refer to the investigation report. (published on June 29, 2012)
http://www.mlit.go.jp/jtsb/eng-air_report/JA4167.pdf

Aircraft damaged on bouncing when landing on airport in solo flight training

Cessna 172S, registered JA33UK, operated by Honda Airways Co., Ltd.

Summary of the accident : A Cessna 172S, registered JA33UK, operated by Honda Airways Co. Ltd., took off from Kumamoto Airport for solo flight training on March 24 (Thursday), 2011. The aircraft was damaged when it bounced during the landing at the airport.

A student pilot on board the aircraft suffered no injury.

The aircraft was damaged; however, no fire broke out.

Findings

First touchdown

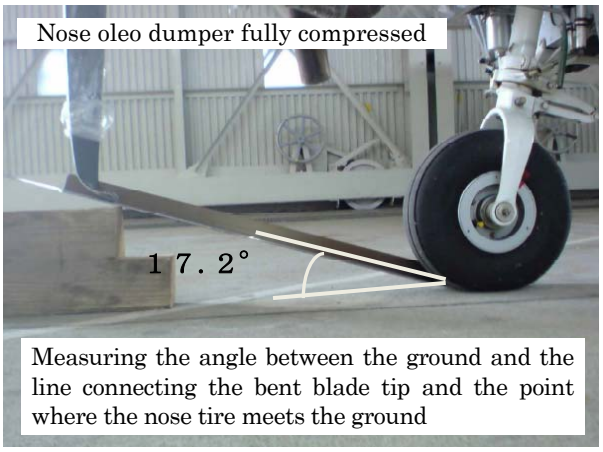
It is probable that the aircraft touched down beyond the target marking due to the left crosswind and tailwind effects. Without a proper landing attitude established, it is somewhat likely that the aircraft bounced with a relatively large sink rate and a larger touchdown speed amid effects of winds.

Second touchdown

As 70 mm inward bending of the blade tip needs at least 17.2° of pitch-down attitude, the student pilot had possibly pushed the control wheel or failed to apply back elevator pressure to hold the pitch-down attitude, resulting in the nose-low contact with the runway.

Accident Aircraft

Damaged Propeller Blade



Measuring the angle between the ground and the line connecting the bent blade tip and the point where the nose tire meets the ground

Probable causes: It is very likely that the aircraft bounced upon landing, followed by a nose-low hard contact with the runway, resulting in damage of propeller blades and fuselage structure.

The student pilot's possible pushing of the control wheel or failure to apply back elevator pressure resulted in the nose-low contact with the runway upon the second settling.

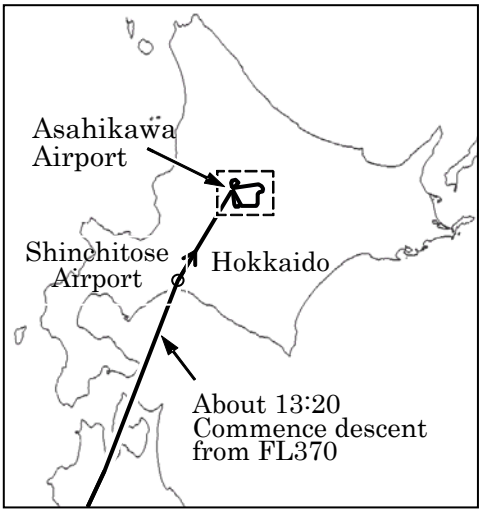
For details, please refer to the investigation report. (published on September 28, 2012)
http://www.mlit.go.jp/jtsb/eng-air_report/JA33UK.pdf

Incident involving emergency maneuver executed by aircraft crew to avoid contact with ground during flight

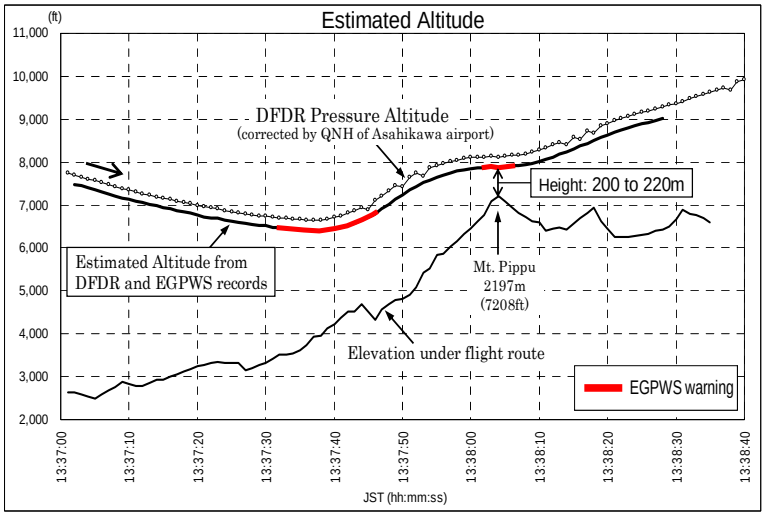
Boeing 737-800, registered JA55AN, operated by Air Nippon Co., Ltd.

Summary of the serious incident: A Boeing 737-800, registered JA55AN, operated by Air Nippon Co., Ltd., took off from Chubu Centrair International Airport for Asahikawa Airport as the scheduled flight 325 of All Nippon Airways Co., Ltd., under the wet lease agreement with All Nippon Airways Co., Ltd. on October 26 (Tuesday), 2010. When the aircraft was descending toward Asahikawa Airport following an air traffic controller's instructions near the destination aerodrome, its ground proximity warning system issued a warning at about 6,800 ft about 30 km east of Asahikawa City, Hokkaido Prefecture. The aircraft took an emergency maneuver and landed at Asahikawa Airport at 14:05 Japan Standard Time.

There were 57 persons on board, consisting of the pilot in command, five crewmembers and 51 passengers, but no one was injured.



Estimated Flight Route



Estimated Flying Altitude

Probable causes: It is highly probable that this serious incident occurred because the aircraft experienced a ground proximity and its flight crew took an emergency maneuver responding to its EGPWS*1 warnings during its descent toward its destination aerodrome, Asahikawa Airport, under the ATC instructions.

It is probable that the ground proximity occurred because the radar controller instructed the aircraft to descend below the MVA*2 without confirming it; its flight crew did not question the radar controller on the descent instructions in spite of their awareness of being vectored to the east toward a mountainous area.

It is probable that the radar controller forgot to confirm the MVA because his attention was focused on securing a separation with another aircraft waiting for a clearance.

It is probable that the flight crew did not question the air traffic controller about the instructions because: the PIC believed the controller was applying the MVA; the first officer gave no advice to the PIC in spite of his use of the VSD*3 based recognition of the approach to the mountainous area.

*1 EGPWS, the enhanced ground proximity warning system, is an airborne safety system which shows a ground proximity to the pilot mainly by analyzing the distance with the ground as measured by a radio altimeter and comparing the geographical feature database and the location of the aircraft.

*2 MVA, the minimum vectoring altitude, means a minimum altitude which an air traffic controller can designate for a radar-vectored aircraft.

*3 VSD, the vertical situation display, is a window which depicts the estimated and actual flight routes and issues a warning whenever a danger of a ground contact exists, by showing the cross section of the estimated flight route and its situation from the present location.

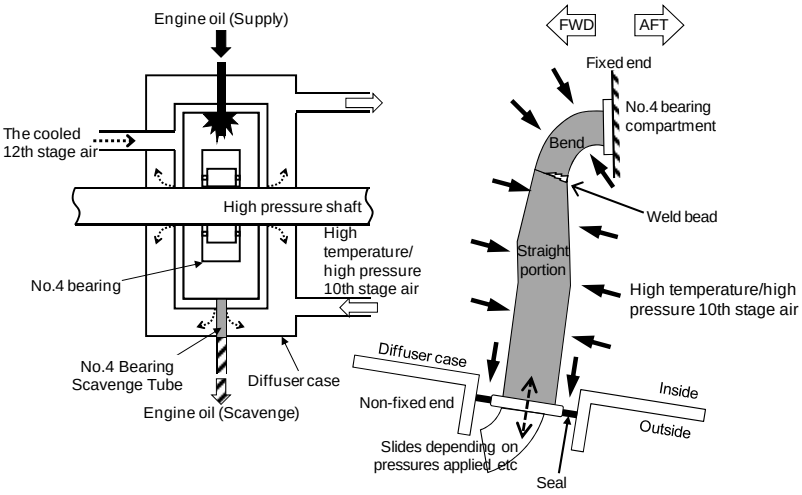
For details, please refer to the investigation report. (published on January 27, 2012)
http://www.mlit.go.jp/jtsb/eng-air_report/JA55AN.pdf

Engine fire during take-off climb
McDonnell Douglas MD-90-30, registered JA002D, operated by Japan Airlines International Co., Ltd.

Summary of the serious incident: A McDonnell Douglas MD-90-30, registered JA002D, operated by Japan Airlines International Co., Ltd. took off from Sendai Airport for Fukuoka Airport as the scheduled flight 3538 at 16:08 Japan Standard Time on August 15 (Sunday), 2010. While climbing around 16:10, the aircraft declared a state of emergency upon the activation of the right engine fire warning alarm at about 5,500 ft. The right engine was shut down, while the fire-extinguishing system was activated; consequently, the aircraft returned to Sendai Airport and landed there at 16:23. Heat damage inside the cowling of the right engine was confirmed after landing.

There were 111 persons on board, consisting of the pilot in command, four other crewmembers and 106 passengers, but no one was injured.

Right Engine Exterior



No.4 Bearing Scavenge Tube

Findings

It is highly probable that the rergion around the bend of the No. 4 bearing scavenge tube gets repeated stress associated with engine operations when the sealed end is pushed outwards as the pressure and the temperature inside the diffuser case rise in proportion to the engine thrust. It is highly probable that the repeated stress generated the fracture origins, from which further repeated stress caused the progress of the fatigue crack followed by the final fracture.

It is probable that because the tube fractured at the bend, the straight portion lost its support; broke loose from the case to make an opening, and from which the engine oil blew out into the high temperature section of the engine to get ignited.

Probable causes: It is probable that this serious incident occurred as follows: the aircraft No. 4 bearing scavenge tube of the right engine fractured during take-off, resulted in the tube breaking loose from the diffuser case letting the engine oil blow out through an opening where it broke loose, and subsequently the oil contact with the engine high temperature section developed into an engine fire.

It is highly probable that the repeated stress associated with engine operations generated the crack origins in the No.4 bearing scavenge tube and the fatigue crack grew into the fracture of the tube.

For details, please refer to the investigation report. (published on June 29, 2012)
http://www.mlit.go.jp/jtsb/eng-air_report/JA002D.pdf